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EXAMINER

PHAN, HANH

ART UNIT PAPER NUMBER

2633

DATE MAILED: 05/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/327,351

Applicant(s)

IONOV ET AL.

Examiner

Hanh Phan

Art Unit

2633

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 June 1999.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. This Office Action is responsive to the Amendment filed on 01/10/2005.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 6 and 27 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

-In claims 6 and 27, lines 2-4, the phrase "**wherein said reconfigurable optical receiver is one from a group consisting of a Fabry-Perot filter, a wavelength division multiplexer, and a fiber grating based optical switch**" does not described in the specification.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the

Art Unit: 2633

applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-5, 7-9, 11-26, and 28-33 are rejected under 35 U.S.C. 102(e) as being anticipated by Wainfan et al (US Patent No. 6,032,041).

Regarding claims 1, 22, 30 and 31, referring to Figures 1 and 4, Wainfan discloses a satellite constellation comprising:

a plurality of satellites (i.e., satellites GEO 12 and satellites MEO 14, Fig. 1), each of the satellites having an RF ground link for communicating with a ground station (i.e., ground station 16, Fig. 1) and an optical link (i.e., intersatellite link 36 maybe an optical link or laser link operating in the 1.6 micron, col. 6, lines 57-58) for communication with at least one of the plurality of satellites;

each of the satellites (i.e., satellites GEO 12 and satellites MEO 14, Fig. 1) having a reconfigurable optical transmitter and a reconfigurable optical receiver for sending and receiving data streams (i.e., the optical intersatellite links 36 on the left of the satellite are optical receiver for receiving the data signals and the optical intersatellite links 36 on the right of the satellite are optical transmitter for transmitting the data signals), each reconfigurable optical transmitter having an optical carrier associated therewith (i.e., the optical link intersatellite 36 operating in the 1.6 micron for communication);

the plurality of satellites arranged to have a first subset of satellites, the first subset of satellites configured to communicate therebetween as a first local area network over a landmass (i.e., a first subset of satellites such as satellite MEO 14 and

satellite GEO 12 configured to communicate therebetween with car 18, truck 18 and metro-rail 18, Fig. 1, col. 6, lines 52-55);

the plurality of satellites arranged to have a second subset of satellites having at least one satellite different than that of the first subset and at least one second satellite the same as the first subset, the second subset of satellites are configured to communicate therebetween as a second local area network over the landmass (i.e., a second subset of satellites such as satellite MEO 14 and satellite GEO 12 having at least one satellite different than that of the first subset such as satellite MEO 14 and at least one second satellite the same as the first subset such as satellite GEO 12 and this second subset of satellites configured to communicate therebetween with ground station 16, computer system 20, Fig. 1, col. 6, lines 52-55).

Regarding claims 2, 12, and 23, Wainfan further teaches each of the plurality of satellites comprises a communications table (i.e., routing unit 38)(Fig. 4).

Regarding claims 3, 13, 24 and 32, Wainfan further teaches the communications table has plurality of routes for communicating between satellites in the first subset (Fig. 4).

Regarding claims 4, 5, 15, 16, 25 and 26, Wainfan also teaches that the reconfigurable optical transmitter comprises an array of laser diodes (i.e., intersatellite links 36, Fig. 4).

Regarding claims 7 and 8, Wainfan also teaches the satellites are in low earth orbit or in medium earth orbit (i.e., satellite MEO 14, Fig. 1).

Regarding claim 9, Wainfan further teaches the first and second subsets are aligned with a landmass (Fig. 1).

Regarding claims 11, 28 and 29, referring to Figures 1 and 4, Wainfan discloses a global communications system comprising:

a plurality of satellites spaced about the earth (i.e., satellites GEO 12 and satellites MEO 14, Fig. 1);

a first subset of the plurality of satellites forming a local area network over a landmass, the first subset of satellites having a first plurality of optical carriers assigned thereto for intercommunication (i.e., a first subset of satellites such as satellite MEO 14 and satellite GEO 12 configured to communicate therebetween with car 18, truck 18 and metro-rail 18, and satellites GEO 12 and MEO 14 having a first plurality of optical carriers assigned thereto for intercommunication such as optical intersatellite links 36 operating in the 1.6 micron, col. 6, lines 57-58 and lines 52-55);

the first subset having a second plurality of optical carriers assigned for communicating with other satellites outside of the subset (i.e., a second subset of satellites such as satellite MEO 14 and satellite GEO 12 having at least one satellite different than that of the first subset such as satellite MEO 14 and at least one second satellite the same as the first subset such as satellite GEO 12 and this second subset of satellites configured to communicate therebetween with ground station 16, computer system 20, Fig. 1, col. 6, lines 52-55).

Regarding claim 14, Wainfan further teaches each of the satellites comprises a reconfigurable optical transmitter and a reconfigurable optical receiver (Fig. 1).

Regarding claim 17, referring to figures 1 and 4, Wainfan discloses a method of communicating within a satellite communications system comprising the steps of:

deploying a plurality of satellites (i.e., satellites GEO 12 and satellites MEO 14, Fig. 1);

grouping a first subset of the plurality of satellites into a first local area network over a first landmass, the first subset having fewer than the plurality of satellites (i.e., grouping a first subset of satellites such as satellite MEO 14 and satellite GEO 12 configured to communicate therebetween with car 18, truck 18 and metro-rail 18, and the first subset of satellites GEO 12 and MEO 14 having fewer than the plurality of satellites and having a first plurality of optical carriers assigned thereto for intercommunication such as intersatellite links 36 operating in the 1.6 micron, col. 6, lines 57-58 and lines 52-55);

forming a plurality of routes between the satellites in the first local area network (Figs. 1 and 4); and

assigning an optical carrier for each route (i.e., assigning an optical intersatellite link operating in the 1.6 micron for each route, col. 6, lines 57-58 and lines 52-55).

Regarding claims 18 and 21, Wainfan further teaches forming a second local area network over a second landmass by grouping a second subset of the plurality of satellites and interconnecting the first local area network and the second local area network to form a wide area network (i.e., grouping a second subset of satellites such as satellite MEO 14 and satellite GEO 12 having at least one satellite different than that of the first subset such as satellite MEO 14 and at least one second satellite the same

Art Unit: 2633

as the first subset such as satellite GEO 12 and this second subset of satellites configured to communicate therebetween with ground station 16, computer system 20, Fig. 1, col. 6, lines 52-55).

Regarding claims 19 and 20, Wainfan further teaches wherein the step of assigning an optical carrier comprises the step of obtaining the optical carrier and route from a respective optical wavelength selector and communication table and the step of assigning comprises the step of reusing the optical carriers (Fig. 4).

Regarding claim 33, Wainfan further teaches the first landmass and second landmass are coincident (Fig. 1).

6. Claims 1-6, 9 and 11-33 are rejected under 35 U.S.C. 102(e) as being anticipated by Brock et al (US Patent No. 6,032,041).

Regarding claims 1, 22, 30 and 31, referring to Figure 1, Brock discloses a satellite constellation comprising:

a plurality of satellites (i.e., satellite 12, 18 and 26, Fig. 1), each of the satellites having an RF ground link for communicating with a ground station (i.e., ground station 16, Fig. 1) and an optical link (i.e., optical cross link that using optical transmitter 44 and optical receiver 22, Fig. 1) for communication with at least one of the plurality of satellites;

each of the satellites (i.e., satellite 12, Fig. 1) having a reconfigurable optical transmitter (i.e., optical transmitter 44, Fig. 1) and a reconfigurable optical receiver (i.e.,

optical receiver 22, Fig. 1) for sending and receiving data streams, each reconfigurable optical transmitter having an optical carrier associated therewith;

the plurality of satellites arranged to have a first subset of satellites, the first subset of satellites configured to communicate therebetween as a first local area network over a landmass (i.e., a first subset of satellites such as satellite 12 and satellite 26 configured to communicate therebetween with ground station 16 and 24, Fig. 1);

the plurality of satellites arranged to have a second subset of satellites having at least one satellite different than that of the first subset and at least one second satellite the same as the first subset, the second subset of satellites are configured to communicate therebetween as a second local area network over the landmass (i.e., a second subset of satellites such as satellite 12 and satellite 18 having at least one satellite different than that of the first subset such as satellite 18 and at least one second satellite the same as the first subset such as satellite 12 and this second subset of satellites configured to communicate therebetween with ground station 16, Fig. 1)(see col. 3, lines 64-67 and col. 4, lines 1-64).

Regarding claims 2, 12, and 23, Brock further teaches each of the plurality of satellites comprises a communications table (col. 4, lines 38-64).

Regarding claims 3, 13, 24 and 32, Brock further teaches the communications table has plurality of routes for communicating between satellites in the first subset (col. 4, lines 38-64, col. 9, lines 42-66 and col. 10, lines 6-52).

Regarding claims 4, 5, 15, 16, 25 and 26, Brock also teaches that the reconfigurable optical transmitter comprises an array of laser diodes (i.e., tunable lasers 112, Figs. 7-12).

Regarding claims 6 and 27, Brock further teaches the reconfigurable optical receiver is one from a group consisting of a Fabry-Perot filter, a wavelength division multiplexer, and a fiber grating based optical switch (i.e., optical band pass filter 60, Fig. 2).

Regarding claim 9, Brock further teaches the first and second subsets are aligned with a landmass (Fig. 1).

Regarding claims 11, 28 and 29, referring to Figures 1-3, Brock discloses a global communications system comprising:

a plurality of satellites spaced about the earth (i.e., satellites 12, 18 and 26, Fig. 1);

a first subset of the plurality of satellites (i.e., satellites 12 and 26, Fig. 1) forming a local area network over a landmass, the first subset of satellites having a first plurality of optical carriers assigned thereto for intercommunication (see Figs. 1-3);

the first subset having a second plurality of optical carriers assigned for communicating with other satellites outside of the subset (i.e., this subset communicate with other satellites such as satellite 18, see Figs. 1-3).

Regarding claim 14, Wainfan further teaches each of the satellites comprises a reconfigurable optical transmitter and a reconfigurable optical receiver (i.e., optical receiver 22 and optical transmitter 44, Fig. 1).

Regarding claim 17, referring to Figures 1-3, Brock discloses a method of communicating within a satellite communications system comprising the steps of:

deploying a plurality of satellites (i.e., satellites 12, 18 and 26, Fig. 1);

grouping a first subset of the plurality of satellites into a first local area network over a first landmass (i.e., satellites 12 and 26, Fig. 1), the first subset having fewer than the plurality of satellites);

forming a plurality of routes between the satellites in the first local area network (see Figs. 1-3); and

assigning an optical carrier for each route (Figs. 1-3).

Regarding claims 18 and 21, Brock further teaches forming a second local area network over a second landmass by grouping a second subset of the plurality of satellites (i.e., satellites 12 and 18, Fig. 1) and interconnecting the first local area network and the second local area network to form a wide area network.

Regarding claims 19 and 20, Brock further teaches wherein the step of assigning an optical carrier comprises the step of obtaining the optical carrier and route from a respective optical wavelength selector and communication table and the step of assigning comprises the step of reusing the optical carriers (see Figs. 1-3).

Regarding claim 33, Brock further teaches the first landmass and second landmass are coincident (Fig. 1).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 7, 8 and 10 are rejected under 35 U.S.C. 102(e) as being unpatentable over Brock et al (US Patent No. 6,032,041) in view of Grant et al (US Patent No. 5,119,225).

Regarding claims 7 and 8, Brock differs from claims 7 and 8 in that he fails to teach the satellites are in low earth orbit or in medium earth orbit. However, Grant in US Patent No. 5,119,225 teaches the satellites are in low earth orbit (Fig. 1, col. 3, lines 27-35). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the satellites are in low earth orbit as taught by Grant in the system of Brock. One of ordinary skill in the art would have been motivated to do this since Grant suggests in column 3, lines 27-35 that using such the satellites are in low earth orbit or in medium earth orbit have advantage of allowing providing high elevation angle coverage at the higher and lower latitudes and propagation time delays are minimized.

Regarding claim 10, the combination of Brock and Grant teaches the subset comprises seven satellites using three optical carriers (Fig. 1 of Grant).

Response to Arguments

9. Applicant's arguments filed 01/10/2005 have been fully considered but they are not persuasive.

The applicant's arguments to claims 1-5, 7-9, 11-26 and 28-33 are not persuasive.

-In independent claims 1, 22 and 30, applicant argues that the Wainfan reference does not teach **"a plurality of satellites each of the satellites having an RF ground link for communicating with a ground station and an optical link for communication with at least one of the plurality of satellites, each of the satellites having a reconfigurable optical transmitter and a reconfigurable optical receiver for sending and receiving data streams each reconfigurable optical transmitter having an optical carrier associated therewith, the plurality of satellites arranged to have a first subset of satellites, the first subset of satellites configured to communicate therebetween as a first local area network over a landmass, the plurality of satellites arranged to have a second subset of satellites having at least one satellite different than that of the first subset and at least one second satellite the same as the first subset, the second subset of satellites are configured to communicate therebetween as a second local area network over the landmass"**. The examiner respectfully disagrees. As indicated in Figures 1 and 4, Wainfan discloses a plurality of satellites GEO 12 and MEO 14, each of the satellites having an RF ground link for communicating with a ground station 16, and an optical link intersatellite link operating in the 1.6 micron for communication with at least one of

Art Unit: 2633

the plurality of satellites (col. 6, lines 57-58), and each of the satellites (i.e., satellites GEO 12 and satellites MEO 14, Fig. 1) having a reconfigurable optical transmitter and a reconfigurable optical receiver for sending and receiving data streams (i.e., the optical intersatellite links 36 on the left of the satellite are optical receiver for receiving the data signals and the optical intersatellite links 36 on the right of the satellite are optical transmitter for transmitting the data signals, each reconfigurable optical transmitter having an optical carrier associated therewith (i.e., the optical link intersatellite 36 operating in the 1.6 micron for communication), and the plurality of satellites arranged to have a first subset of satellites, the first subset of satellites configured to communicate therebetween as a first local area network over a landmass (i.e., a first subset of satellites such as satellite MEO 14 and satellite GEO 12 configured to communicate therebetween with car 18, truck 18 and metro-rail 18, Fig. 1, col. 6, lines 52-55), and the plurality of satellites arranged to have a second subset of satellites having at least one satellite different than that of the first subset and at least one second satellite the same as the first subset, the second subset of satellites are configured to communicate therebetween as a second local area network over the landmass (i.e., a second subset of satellites such as satellite MEO 14 and satellite GEO 12 having at least one satellite different than that of the first subset such as satellite MEO 14 and at least one second satellite the same as the first subset such as satellite GEO 12 and this second subset of satellites configured to communicate therebetween with ground station 16, computer system 20, Fig. 1, col. 6, lines 52-55).

-In independent claims 11 and 28, applicant argues that the Wainfan reference does not teach **“a plurality of satellites spaced about the earth, a first subset of the plurality of satellites forming a local area network over a landmass, the first subset of satellites having a first plurality of optical carriers assigned thereto for intercommunication, the first subset having a second plurality of optical carriers assigned for communicating with other satellites outside of the subset”**. The examiner respectfully disagrees. As indicated in Figures 1 and 4, Wainfan discloses a plurality of satellites spaced about the earth (i.e., satellites GEO 12 and satellites MEO 14, Fig. 1), a first subset of the plurality of satellites forming a local area network over a landmass, the first subset of satellites having a first plurality of optical carriers assigned thereto for intercommunication (i.e., a first subset of satellites such as satellite MEO 14 and satellite GEO 12 configured to communicate therebetween with car 18, truck 18 and metro-rail 18, and satellites GEO 12 and MEO 14 having a first plurality of optical carriers assigned thereto for intercommunication such as optical intersatellite links 36 operating in the 1.6 micron, col. 6, lines 57-58 and lines 52-55), and the first subset having a second plurality of optical carriers assigned for communicating with other satellites outside of the subset (i.e., a second subset of satellites such as satellite MEO 14 and satellite GEO 12 having at least one satellite different than that of the first subset such as satellite MEO 14 and at least one second satellite the same as the first subset such as satellite GEO 12 and this second subset of satellites configured to communicate therebetween with ground station 16, computer system 20, Fig. 1, col. 6, lines 52-55).

-In independent claim 17, applicant argues that the Wainfan reference does not teach **"a method of communicating within a satellite communications system comprising the steps of: deploying a plurality of satellites, grouping a first subset of the plurality of satellites into a first local area network over a first landmass, the first subset having fewer than the plurality of satellites, forming a plurality of routes between the satellites in the first local area network, and assigning an optical carrier for each route"**. The examiner respectfully disagrees. As indicated in Figures 1 and 4, Wainfan discloses a method of communicating within a satellite communications system comprising the steps of: deploying a plurality of satellites (i.e., satellites GEO 12 and satellites MEO 14, Fig. 1), grouping a first subset of the plurality of satellites into a first local area network over a first landmass, the first subset having fewer than the plurality of satellites (i.e., grouping a first subset of satellites such as satellite MEO 14 and satellite GEO 12 configured to communicate therebetween with car 18, truck 18 and metro-rail 18, and the first subset of satellites GEO 12 and MEO 14 having fewer than the plurality of satellites and having a first plurality of optical carriers assigned thereto for intercommunication such as optical intersatellite links 36 operating in the 1.6 micron, col. 6, lines 57-58 and lines 52-55), forming a plurality of routes between the satellites in the first local area network (Figs. 1 and 4), and assigning an optical carrier for each route (i.e., assigning an optical intersatellite link 36 operating in the 1.6 micron for each route, col. 6, lines 57-58 and lines 52-55).

Therefore, it is believed that the limitations of claims 1-5, 7-9, 11-26 and 28-33 are still met by Wainfan and the rejection is still maintained.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh Phan whose telephone number is (571)272-3035.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-4700.


HANH PHAN
PRIMARY EXAMINER